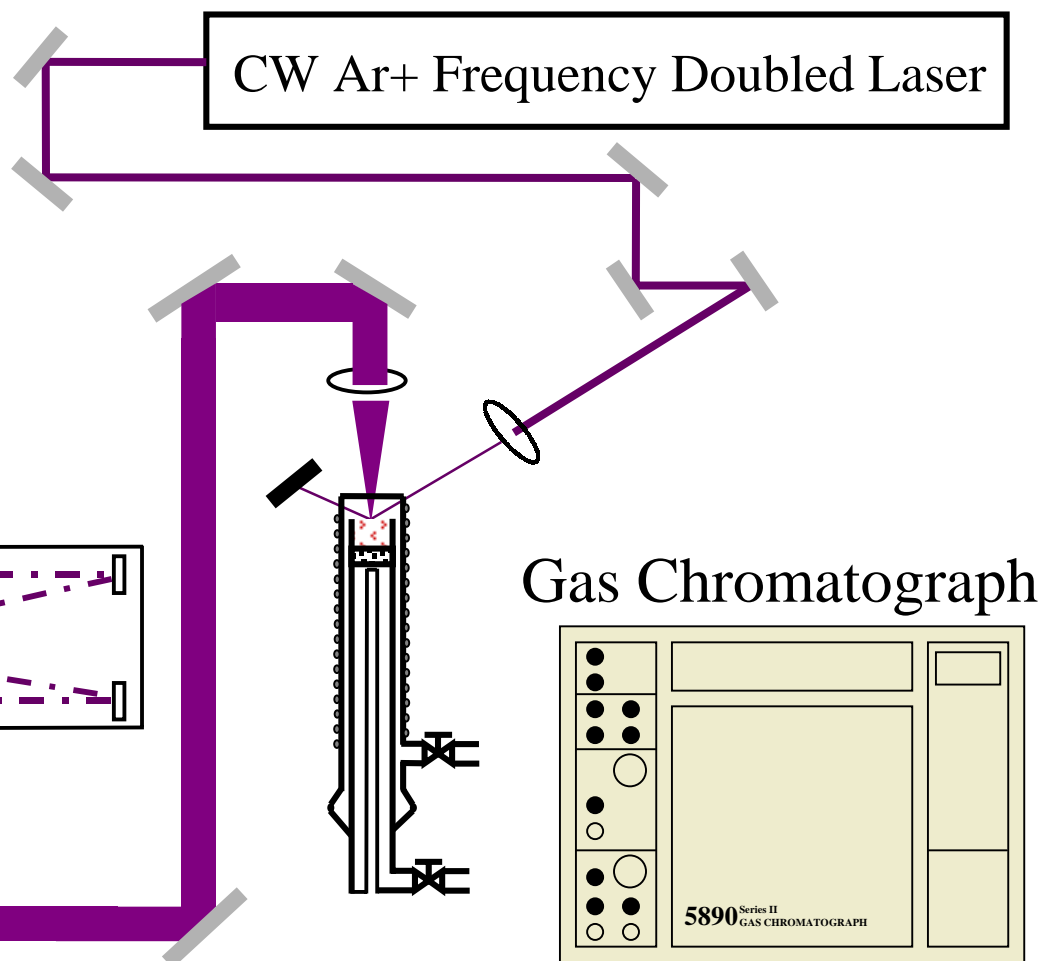
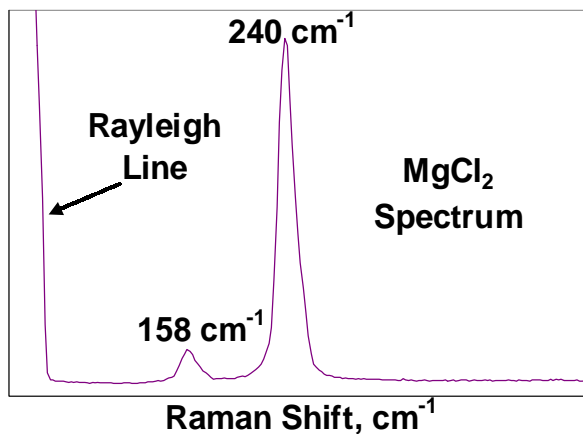
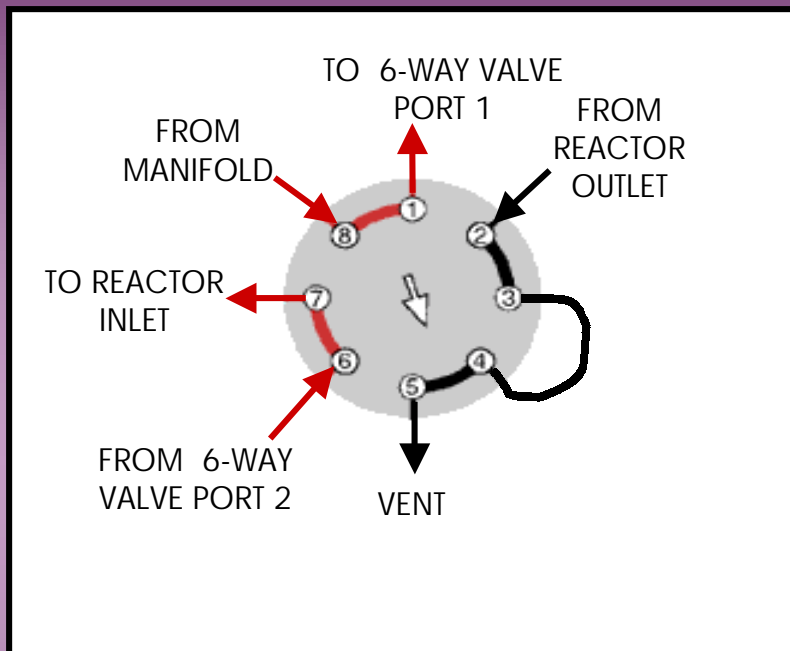


Experimental Setup

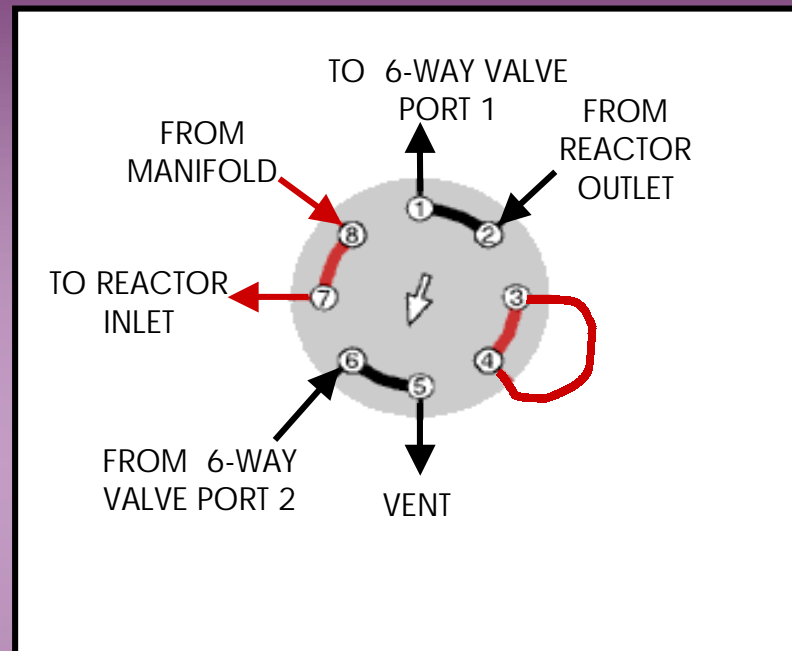


Reaction Loop Sampling Valve



Position 1

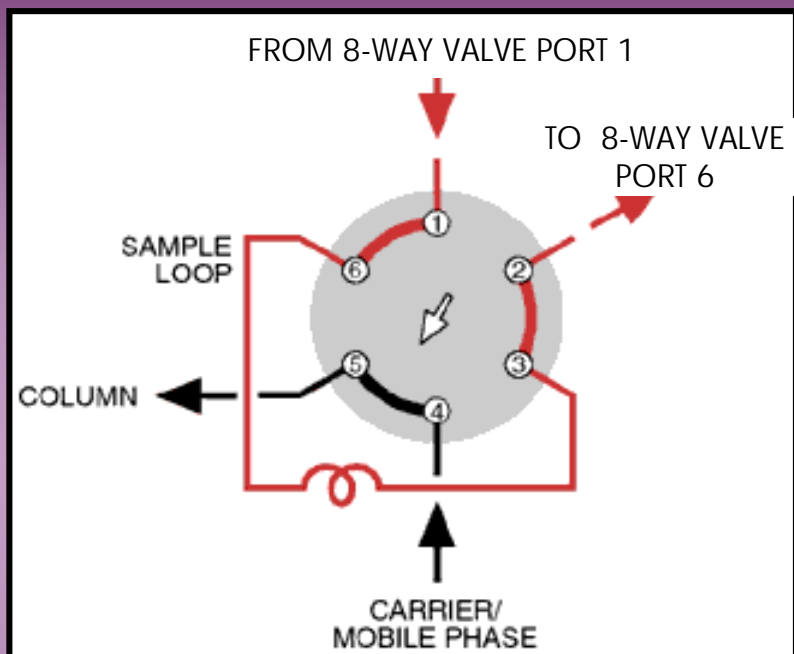
- He + hydrocarbon + H₂ from manifold are routed to the GC sampling valve
- He + hydrocarbon + H₂ returns from GC sampling valve and sent to reactor inlet
- Reactor effluent vented



Position 2

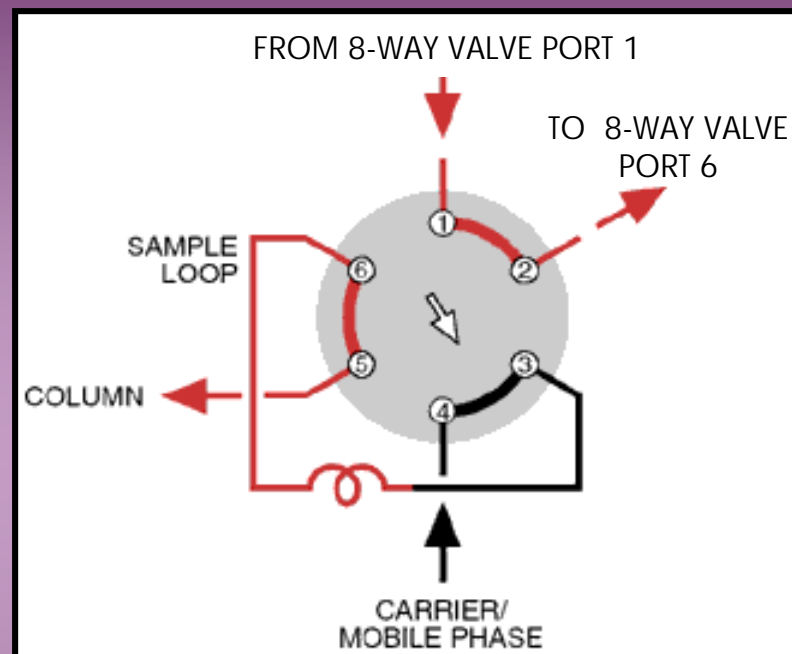
- Reactor effluent routed to GC sampling valve
- Reactor effluent returns from the GC sampling valve and vented
- He + hydrocarbon + H₂ from manifold routed to reactor inlet

GC Sampling Valve



Position 1

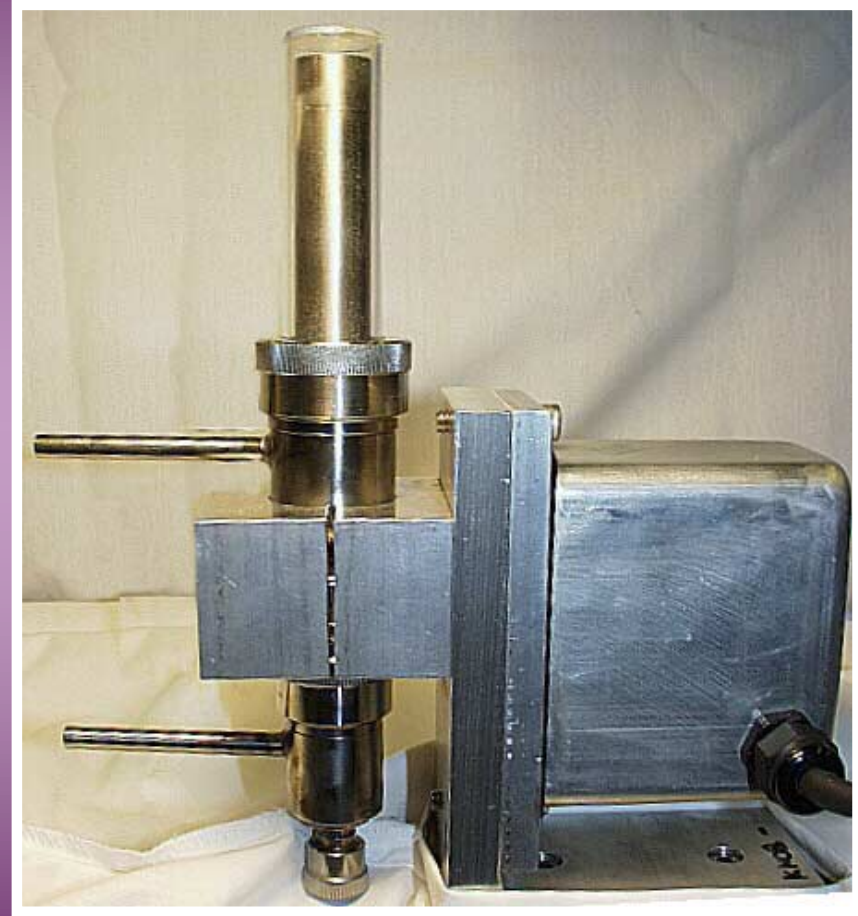
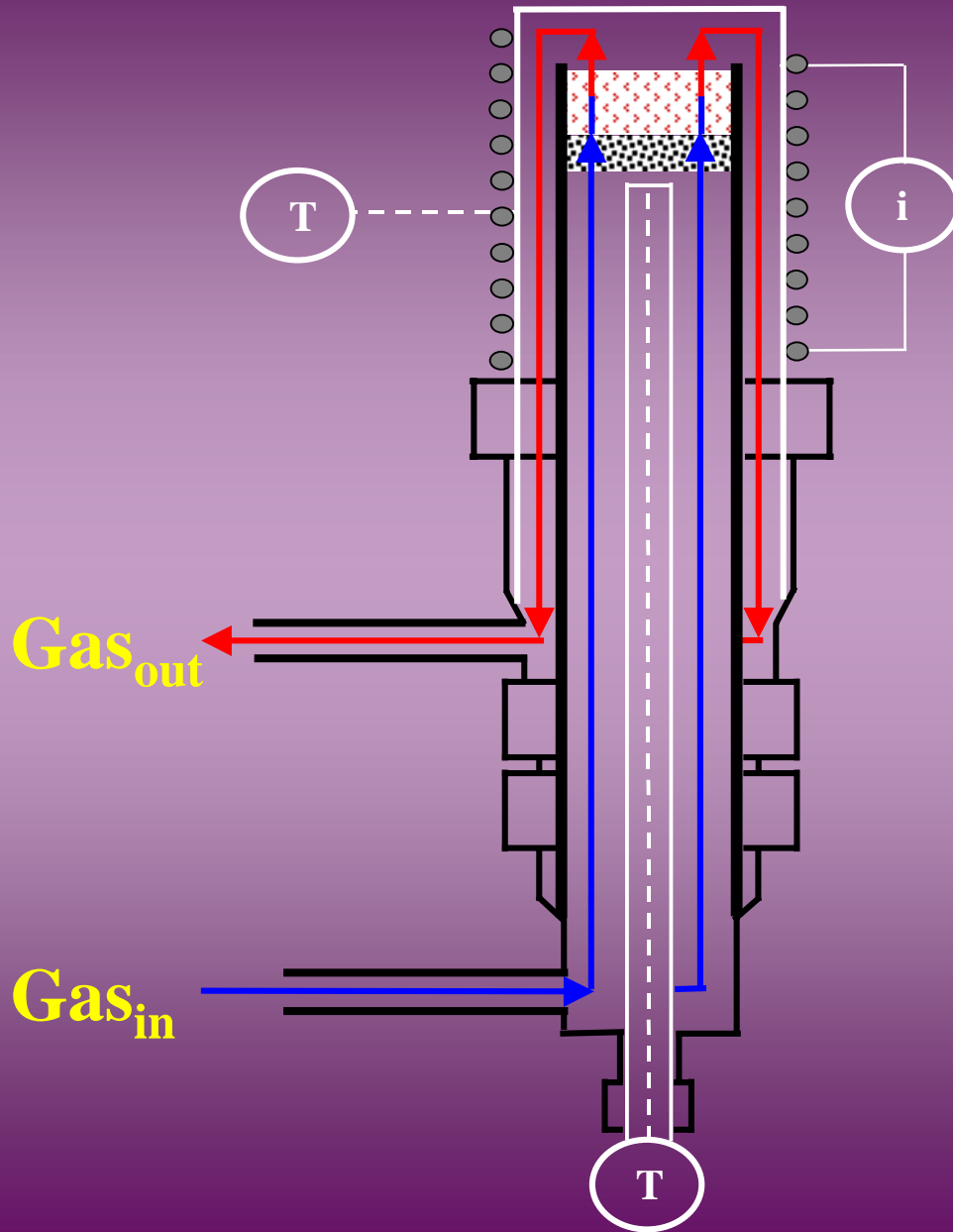
- Stream from reaction loop sampling valve flows through a sample loop of known volume and returns to the reaction loop sampling valve



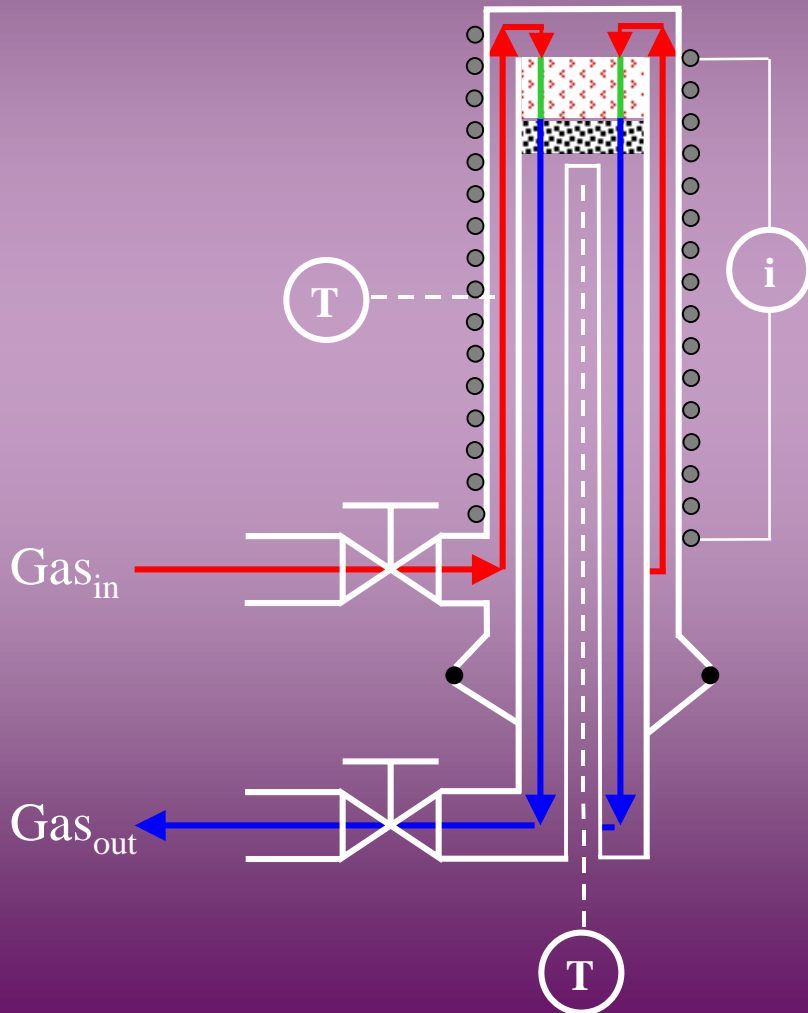
Position 2

- A known volume of gas from the reaction loop sampling valve is injected into the GC column
- Stream from reaction loop is immediately routed back

Fluidized Bed Reactor



Packed Bed Reactor



Advantages

- gas passes through catalyst bed
- fabricated from pyrex and quartz - no reaction with walls
- catalyst can be loaded in a dry box and kept in inert atmosphere
- 25 - 350°C operating range

Sample Spinning Reactor

Advantages

- minimizes sample degradation

